Petr Stepanov

`Software developer. UI designer.`

stepanovps@gmail.com (419) 496-86-02 petrstepanov.com GitHub Dribbble

Summary

Ph.D. graduate in physics with expertise in computer science. Strong desktop and web application software development skills. More than five years in user interface (UI) and user experience (UX) design. Seeking to apply for a software development position in the industry. Authorized to work in the US on Optional Practical Training (OPT expires February 2023). Will consider visa sponsorship offers.

Computer Science Skills

- **Essentials**. Git, SVN, SSH, Linux, and Terminal usage. BASH scripting. IDEs: Eclipse, Xcode, Visual Studio Code (VS Code). Project management: JIRA, Trello.
- **Desktop app development**. C/C++, GNU make, CMake. Frameworks: Qt, CERN ROOT, Geant4. Java and Swing. Python.
- **Frontend**: HTML, CSS (LESS and SASS), Bootstrap, responsive web design, JavaScript and jQuery, npm, gulp, AngularJS, React.js. Google Web Toolkit. PHP and WordPress themes development.
- **Backend**. Node.js, EJS, Java.
- **UI/UX design**. Figma, Sketch, InVision Studio, Adobe XD, Adobe Photoshop, Adobe Illustrator, Inkscape, Blasamiq, Blender.
- **Apple iOS**. Fundamental Swift skills. User interface development with UIkit and storyboards.

Work Experience

C++ Software Developer

Thomas Jefferson National Laboratory (JLab), Newport News, VA, USA. **Jul 2020 - Current**

- Applied CERN ROOT framework (C++) to perform statistical analysis of a significant amount (over 100 GB) of the raw experimental data of the Kaon LT experiment at JLab. Link to GitHub.
- Utilized SLURM environment on JLab supercomputer environment to run resourceful particle simulations on multiple computing nodes at the same time. This decreased the wall computation time by more than 10 times.
- Proposed and implemented RAMDisk functionality on the development environment. This lead to an over 60% increase in source code indexing time.
- Set up data acquisition system that performs triggered waveform acquisition from Tektronix oscilloscope to a local Network Attached Storage (NAS) device. RedHat, Ethernet, SAMBA, Python, National Instruments VISA library.
- Committed 50+ shifts at the particle accelerator performing Target Operator and Shift Leader duties (Pion LT project, experimental Hall C).

Software Developer • Postdoctoral Researcher

Catholic University of America (CUA), Washington, DC, USA. **Jul 2020 - Current**

- Applied Machine Learning (ML) TMVA framework to perform binary classification of thousands of signals from a data acquisition (DAQ) setup. Link to GitHub.
- Developed a computer simulation based on the Geant4 framework (C++, CMake, Eclipse IDE, gdb) to study optical properties of a novel scintillation material to be used in the EIC detector system. Link to GitHub.
- Teaching experience: mentoring students within a 3-month Research Experiences for Undergraduates (REU) program at the Physics Department at CUA. Giving talks and presentations about Linux Terminal, and supercomputer environment.

- Enhanced debugging of the core library source code lead to opening more than 10 bug reports on the ROOT (C++) forum.

Software Developer • Research Assistant

Bowling Green State University (BGSU), Bowling Green, OH, USA. **Aug 2014 - May 2020**

- Applied ROOT C++ libraries to write three GUI open-source software for scientific data interpretation.
  - GitHub repositories contain over 10k lines of code in total: TLIST Processor, SW Calculator, RooPositron.
  - Technologies used: CMake, C++, ROOT, Fox GUI and RooFit libraries.
  - Extended default ROOT GUI library (Qt-based) to support the MVP design pattern.
- Wrote a GUI application LuminApp (Java, Swing) to parse and merge time-stamped data from optical spectrometer and thermometer. This increased data processing time by two orders of magnitude.
- Developed static website (Hexo, Gulp, Bootstrap) and visual identity for the SelimLab research group. Website has a 99% Google performance rank and features 700 ms time to interactive metrics.
- Maintained local Apache HTTP server physics.bgsu.edu hosting over 10 websites at the BGSU.
- Created website for the ICPA-18 international conference with registration (over 150 users) and payment system workflow (WordPress, PHP, Recurly.js), and landing pages for events.

Frontend Developer, UI/UX Designer • Freelance **Sep 2012 - Current**

- Designed and built online e-commerce store Sticker Store LLC with static website generator (Figma, Hexo, Snipcart, Bootstrap, SASS, EJS, Node.js).
  - Improved the Google PageSpeed Insights metrics (CLS, LCP) up to 97%.
  - Created a recursive script to export over 300 products from YAML file to Google Merchant.
  - Optimized SEO. Project reached over 1400 organic monthly users.
- Made iOS application (Swift, UIkit, storyboards) for the We.Team messenger (more than 3k monthly downloads in AppStore). Participated in cloud-based messenger development with enhanced file sharing capabilities (HTML, React JS, SASS).
- Migrated the landing page for Sweetbridge company from WordPress to Jekyll static site generator (Ruby, CSS). This resulted in a 70% improvement in the page load time.
- Developed the front-end part (Angular.js, HTML, LESS) for Lili Social network.
  - Assisted with iOS mobile application (Ionic).
  - Enabled SEO crawling of over 1000 Angular.js pages with Google bot.
- Web design.
  - Designed logos, UI/UX prototypes (Figma, Sketch, Illustrator) and branding identity for over 10 different companies.
  - Converted numerous design assets and mockups into responsive HTML and CSS.
  - Mocked up and integrated dozens of cross-browser responsive email templates.

Computer Science Teacher

Phys-Tech College at MIPT, Moscow, Russia. **Oct 2009 - May 2011**

- Provided instructions and guidance to high school students on following computer courses: C/C++ programming, HTML, Adobe Photoshop and 3D Studio Max.

Research Scientist

Institute for Theoretical and Experimental Physics (ITEP), Moscow, Russia. **Sep 2008 - Apr 2011**

- Application of positron lifetime spectroscopy for studying the radioactive-induced defects in steels. Monte-Carlo particle simulations with Fortran 95. Maintaining software for CAMECA tomographic atom probe (MSVC). Application of CERN ROOT libraries for fitting and analysis of experimental spectra.

Education

Bowling Green State University (BGSU) • Ohio, USA **Aug 2014 - May 2020**

Ph.D. in Photochemical Sciences • GPA 3.423. Novel developments in positron annihilation spectroscopy techniques—from experimental setups to advanced processing software. View manuscript.

Ohio Supercomputer Workshop • Ohio, USA **Jan 2017 - Feb 2017**

Hands-on sessions in Supercomputer Essentials. Introduction to the key developments in the supercomputer field.

British Higher School of Art and Design (BHSAD) • Moscow, Russia **Dec 2011 - Feb 2012**

Three-month intensive in Graphical Design and Visual Communications. Lectures and hands-on experience in graphic design. Intensive covered following subjects: brand identity, illustration principles, typography and lettering, effective advertising campaigns.

National Research Nuclear University (MEPhI) • Moscow, Russia **Aug 2014 - May 2020**

B.S. and M.S. in Solid State Physics. Defect studies of neutron-irradiated nuclear power plant vessel steels by means of positron annihilation spectroscopy.

Recent publications

- J. Arrington, C Ayerbe. Gayoso, P C. Barry, V. Berdnikov, D. Binosi, L. Chang, M. Diefenthaler, M. Ding, R. Ent, T. Frederico, Y. Furletova, T J. Hobbs, T. Horn, G M. Huber, S J D. Kay, C. Keppel, H-W. Lin, C. Mezrag, R. Montgomery, I L. Pegg, K. Raya, P. Reimer, D G. Richards, C D. Roberts, J. Rodríguez-Quintero, D. Romanov, G. Salmè, N. Sato, J. Segovia, P. Stepanov, A S. Tadepalli, R L. Trotta. Revealing the structure of light pseudoscalar mesons at the electron–ion collider
- P. S.. Stepanov, F. A.. Selim, S. V.. Stepanov, A. V.. Bokov, O. V.. Ilyukhina, G.. Duplâtre, V. M.. Byakov. Interaction of positronium with dissolved oxygen in liquids

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